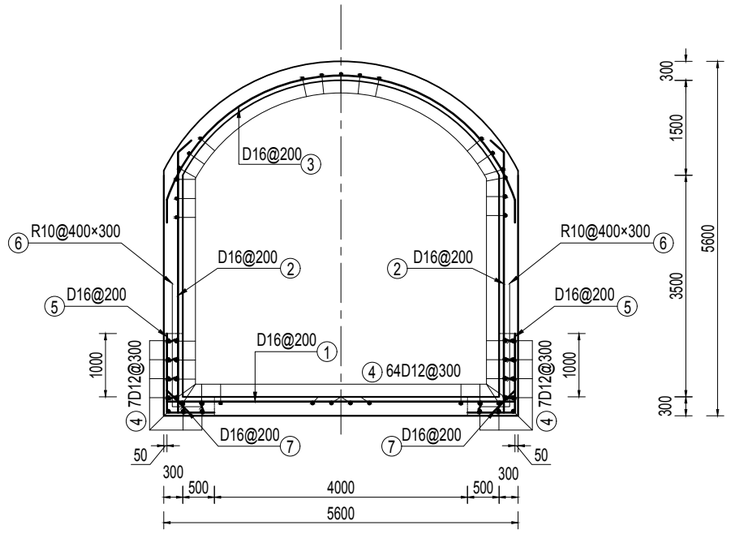
TYPICAL CROSS SECTION D1/D2

SCALE 1:50

(for rock class I&II&III)



REBAR LIST OF LINING A PER METER

NO.	SHAPE (mm)	DIAMETER (mm)	LENGTH (mm)	NUMBER	TOTAL LENGTH (m)	REMARKS
①	390 — 5500 — 390	D16	6280	5	31.40	
②	390 — 3825 — θ=145° — 640	D16	4855	10	48.55	
③	240 — 7210, θ=142°, R=2908 — 240	D16	7690	5	38.45	
④	1000	D12	1000	78	78.00	
⑤	side wall — 1250 — 750 — invert	D16	2000	10	20.00	
⑥	130 — 175 — 130	R10	435	35	15.23	
⑦	640	D16	640	10	6.40	

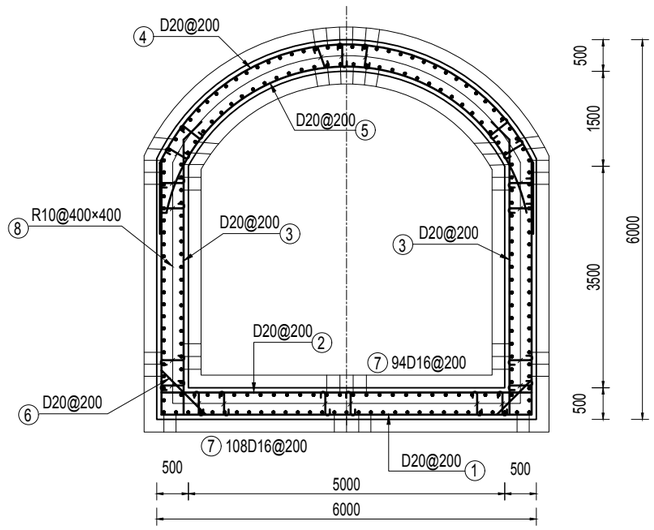
BOQ OF LINING TYPE D1(PER METER)

LINING TYPE	Diameter (mm)	Total length (m)	Unit weight (kg/m)	Total weight (kg)	Summation (kg)
D1	D16	144.80	1.580	228.78	307.64
	D12	78	0.890	69.42	
	R10	15.23	0.617	9.44	
	Concrete: 5.76 m³				

TYPICAL CROSS SECTION D1

(for rock class III)

(for chainage 06.000 to 020.000)



REBAR LIST OF LINING A PER METER

NO.	SHAPE (mm)	DIAMETER (mm)	LENGTH (mm)	NUMBER	TOTAL LENGTH (m)	REMARKS
①	4030 — 5850 — 4030	D20	13910	5	69.55	
②	380 — 5850 — 380	D20	6610	5	33.05	
③	380 — 4340 — θ=145° — 400	D20	5120	10	51.20	
④	1000 — 7260, θ=130°, R=3258 — 1000	D20	9260	5	46.30	
⑤	800 — 6320, θ=125°, R=2908 — 800	D20	7920	5	39.60	
⑥	990	D20	990	10	9.90	
⑦	1000	D16	1000	200	200.00	
⑧	130 — 350 — 130	R10	610	120	73.20	

BOQ OF LINING TYPE D3(PER METER)

LINING TYPE	Diameter (mm)	Total length (m)	Unit weight (kg/m)	Total weight (kg)	Summation (kg)
D3	D20	249.60	2.470	616.51	977.67
	D16	200.00	1.580	316.00	
	R10	73.20	0.617	45.16	
	Concrete: 9.96 m³				

SCALE 1:50 0 0.5 1 1.5 2 2.5m

NOTE

1. Elevations,chainages are measured in meter,diameter and spacing of rebar are millimeter, dimensions are in millimeter unless otherwise specified.
2. The thickness of concrete cover is 75mm unless otherwise specified.
3. Concrete faces of construction joints shall be roughed appropriately.
4. Symbol description:
   R denotes round bar, yield strength of the round bar is 280MPa;
   D denotes deformed bar, yield strength of the deformed bar is 500MPa.
5. Anchorage length of rebar shall be not less than 40 times of the reinforcement diameter, and lap length of rebar is 50 times of the reinforcement diameter.

REFERENCE DRAWINGS

UT1-C-010-CVL-DG-42001	Arrangement drawing of diversion tunnel
UT1-C-010-CVL-DG-42008	Outline drawing of diversion tunnel tower of diversion tunnel
UT1-C-010-CVL-DG-42005	Outline drawing of diversion tunnel lining

SYMBOL AND LEGEND

FOR APPROVAL

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REV. NO.	DATE	DESCRIPTION	DRAWN	CHKD.	APPD.
OB	10.Jun.,2022	SECOND ISSUE	Zhu T.Z.	Lei Y.G.	Han J.B. Luo L.
OA	20.MAR.,2022	FIRST ISSUE	Zhu T.Z.	Lei Y.G.	Han J.B. Luo L.

PROJECT TITLE

Upper Trishuli-1 HEP (216MW)

OWNER

NWEDC NEPAL WATER AND ENERGY DEVELOPMENT CO. PVT. LTD.

OWNER'S ENGINEER

TRACTEBEL ENGIE — jade CONSULT

CONTRACTOR

DOOSAN Doosan Enerbility

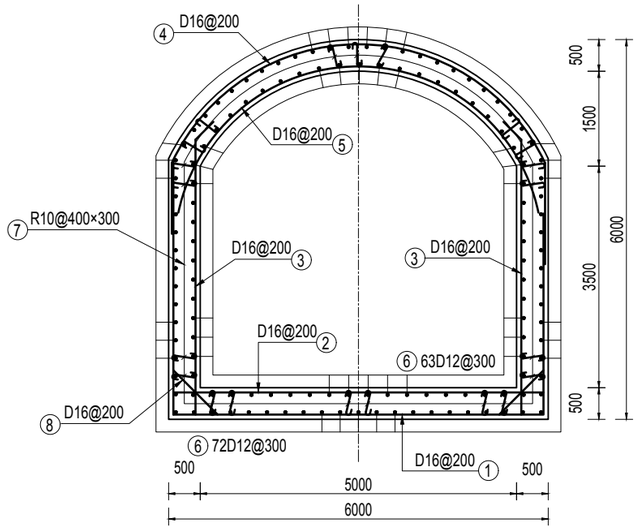
DRAWING TITLE

REINFORCEMENT DRAWING OF DIVERSION TUNNEL LINING

DRAWING NUMBER	SHEET NO.	REV. NO.
UT1-C-010-CVL-DG-42006-1	1 OF 2	OB

TYPICAL CROSS SECTION D3
(for rock class IV)

SCALE 1:50



REBAR LIST OF LINING A PER METER

NO.	SHAPE (mm)	DIAMETER (mm)	LENGTH (mm)	NUMBER	TOTAL LENGTH (m)	REMARKS
①	4030 — 5850 — 3230	D16	13110	5	65.55	
②	380 — 5850 — 380	D16	6610	5	33.05	
③	380 — 4340 θ=145° — 240	D16	4960	10	49.60	
④	800 — 7260 θ=130° R=3258 — 1600	D16	9660	5	48.30	
⑤	640 — 6320 θ=125° R=2908 — 640	D16	7600	5	38.00	
⑥	1000	D12	1000	135	135.00	
⑦	130 — 350 — 130	R10	610	160	97.60	
⑧	640	D16	640	10	6.40	

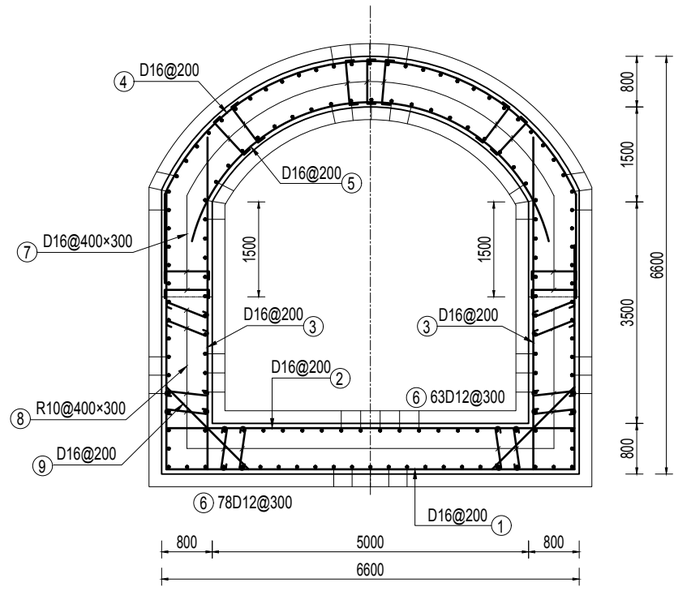
BOQ OF LINING TYPE D3(PER METER)

LINING TYPE	Diameter (mm)	Total length (m)	Unit weight (kg/m)	Total weight (kg)	Summation (kg)
D3	D16	240.90	1.580	380.62	560.99
	D12	135.00	0.890	120.15	
	R10	97.60	0.617	60.22	
	Concrete: 9.96 m³				

TYPICAL CROSS SECTION D4
(for intersection of headrace and diversion tunnel)

CHAINAGE D0+175.039~ D0+195.039

SCALE 1:50



REBAR LIST OF LINING A PER METER

NO.	SHAPE (mm)	DIAMETER (mm)	LENGTH (mm)	NUMBER	TOTAL LENGTH (m)	REMARKS
①	4400 — 6450 — 3600	D16	14450	5	72.25	
②	6280	D16	6280	5	31.40	
③	4780	D16	4780	10	47.80	
④	800 — 8070 θ=130° R=3558 — 1600	D16	10470	5	52.35	
⑤	640 — 6320 θ=125° R=2908 — 640	D16	7600	5	38.00	
⑥	1000	D12	1000	141	141.00	
⑦	160 — 650 — 160	D16	970	80	77.60	
⑧	130 — 650 — 130	R10	910	80	72.80	
⑨	640	D16	640	10	6.40	

BOQ OF LINING TYPE D4(PER METER)

LINING TYPE	Diameter (mm)	Total length (m)	Unit weight (kg/m)	Total weight (kg)	Summation (kg)
D4	D16	325.80	1.580	514.76	685.17
	D12	141.00	0.890	125.49	
	R10	72.80	0.617	44.92	
	Concrete: 16.79 m³				

SCALE 1:50 0 0.5 1 1.5 2 2.5m

NOTE

1. Elevations,chainages are measured in meter,diameter and spacing of rebar are millimeter, dimensions are in millimeter unless otherwise specified.
2. Other notes please refer to the drawing 1/2.

REFERENCE DRAWINGS

UT1-C-010-CVL-DG-42001	Arrangement drawing of diversion tunnel
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SYMBOL AND LEGEND

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DOOSAN Doosan Enerbility

DRAWING TITLE

REINFORCEMENT DRAWING OF DIVERSION TUNNEL LINING

DRAWING NUMBER	SHEET NO.	REV. NO.
UT1-C-010-CVL-DG-42006-2	2 OF 2	OB